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TOWN OF PICTON 1966
COUNTY OF PRINCE EDWARD

THE
ONTARIO WATER RESOURCES
COMMISSION
WATER POLLUTION SURVEY
of the
TOWN OF PICTON
COUNTY OF PRINCE EDWARD

1966

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Report on a water pollution
survey of the town of Picton in
the county of Prince Edward.

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THE
ONTARIO WATER RESOURCES
COMMISSION

Report on a
WATER POLLUTION SURVEY

of the
TOWN OF PICTON
in the
COUNTY OF PRINCE EDWARD

Division of Sanitary Engineering

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Report on a
WATER POLLUTION SURVEY
of the
TOWN OF PICTON

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WATER POLLUTION SURVEY

of the

TOWN OF PICTON

INTRODUCTION

A water pollution survey of this town was performed on September 29 and 30, 1965. Water pollution surveys are made by the Commission for the purpose of locating and recording sources of existing and potential water pollution. Where pollution sources are noted, recommendations are made concerning their abatement to the parties concerned.

The appendices to this report include an interpretation of the various tests performed on the samples, a tabulation of the sample results, and a map of the town showing the sampling point locations.

INTERVIEWS WITH OFFICIALS

Prince Edward County Health Unit

Dr. W. N. Turpel, Medical Officer of Health & Director;
Mr. H. Seeley, Public Health Inspector;

Town of Picton

Mr. F. Ward, Town Clerk;
Mr. A. LeHeup, Town Foreman;
Mr. G. Dingman, Superintendent, Water Pollution
Control Plant;
Mr. L. Tolley, Water Works Foreman.

THE TOWN OF PICTON

The present Town of Picton, known originally as Hallowell Bridge and later as Hallowell Village, was first settled in 1774 on the west side of the creek which generally bisects the present town. The Village of Picton, named in honour of General Sir Thomas Picton, was established later on the east side of the creek. The two villages were incorporated as a town by an Act passed March 4, 1837, at the first session of the Thirteenth Provincial Parliament of Upper Canada.

According to the 1966 Municipal Directory, the population was approximately 4,866 in 1965. The area of the town is approximately 585 acres.

For the purpose of this survey the main watercourse in town, i.e., the creek flowing through the cemetery past the municipal refuse disposal site and the sewage plant to empty into Picton Bay, shall be referred to as Picton Creek.

WATER USES

Municipal

The municipal water purification plant is located near the north limits of the town at the foot of Spencer Street. Picton Bay is the source of supply and treatment includes coagulation and sedimentation, filtration, chlorination and fluoridation. Storage is provided in a 750,000-gallon capacity open reservoir.

Maximum daily pumpages have exceeded 2.0 million gallons. This system supplies the Picton Army Camp and part of the Township of Hallowell as well as the demands of the town.

Industrial

All industries in town are supplied by the municipal water system.

Recreational

Boating and fishing are enjoyed more extensively than swimming in Picton Bay within the town limits.

SAMPLING PROCEDURES

The locations of sampling points are shown on the appended map of the Town of Picton. Samples were collected from all outfalls where significant flows were observed. Stream samples were collected at pertinent points in order to assess the influence of waste flows on the receiving stream.

All laboratory analyses were performed at the Ontario Water Resources Commission Laboratory in Toronto.

Seasonal weather conditions prevailed at the time of sampling. There was no significant precipitation at this time and dry weather flows were experienced.

WASTE DISPOSAL

Municipal Sewage Works

The Picton sewage works include two pumping stations and a recently constructed, modified activated sludge type

sewage treatment plant of 1.5 million U.S. gallons per day capacity. The sewage is afforded secondary treatment and two-stage aerobic sludge digestion and effluent chlorination facilities are provided. Waste sludge is reportedly hauled to farmland for fertilizing purposes. Overflow difficulties are being experienced at the main sewage pumping station, as indicated in the pertinent sample results appended to this report.

Industrial Waste Disposal

All the industries in the town have access to the municipal sanitary sewer system. The storm sewer discharge from the Proctor-Silex plant to a local creek had de-oxygenating characteristics. A separate inspection report with pertinent recommendations has been forwarded to this firm.

Private Sewage Disposal

In some instances private residences discharge untreated sanitary wastes direct to surface water and, in other instances, storm sewer discharges were noted to contain substantial amounts of raw sewage. The storm sewer discharging to the bay at the rear of the County Buildings and a storm sewer originating at East Lake Road and discharging to Picton Creek in the cemetery were obviously conducting polluted flows. Town officials should arrange to have all sanitary connections to storm sewers severed and directed to the sanitary trunk sewer system.

Refuse Disposal

The municipal refuse disposal site is located upstream of the sewage treatment plant in a marsh bordering the west bank of Picton Creek.

The appended laboratory analyses results of a creek sample collected in the vicinity of the dump indicated an excessive BOD and solids and coliform contents and substantiate the need for corrective measures at this site. An adequate dyke of impervious material constructed between the creek and the disposal site would be one measure to control the escape of leachate to the watercourse. A capping of impervious material over the completed section of the dump would control the penetration of precipitation and thus reduce the amount of leachate resulting from this operation.

SUMMARY AND CONCLUSIONS

A municipal water pollution survey of the Town of Picton was conducted on September 29 and 30, 1965. Investigations were made to assess the quality of Picton Creek and Bay and to obtain information concerning discharges thereto.

This survey was of assistance in locating outfalls where deleterious sanitary and/or industrial wastes were gaining access to the respective storm sewers. As indicated by the laboratory analyses results, heavily polluted storm sewer flows were discharging to the creek and the bay.

A highly unsatisfactory condition existed at the town dump insofar as stream pollution is concerned.

This survey revealed that discharges from the Proctor-Silex plant were polluting a local watercourse.

A separate investigation and subsequent report pertaining to this firm has been prepared by the Division of Industrial Wastes of this Commission. This firm has been requested to take steps to control waste discharges at their plant.

RECOMMENDATIONS

1. Municipal officials should expedite their programme of separating combined sewage flows to exclude contaminated flows from storm sewers at Picton.
2. Attempts should be made to control the escape of leachate from the town dump to Picton Creek.
3. The firm of Proctor-Silex should take the necessary steps to protect the quality of the local watercourse.

Approved by:



L. G. South,
District Engineer,
Division of Sanitary Engineering.

Prepared by: A. D. McConnell

/mh

EXPLANATION & SIGNIFICANCE OF LABORATORY ANALYSES

All the laboratory tests included in this report were performed at the Ontario Water Resources Commission Laboratory in Toronto.

Bacteriological Examination

The membrane filter technique is used to obtain a direct enumeration of coliform organisms. These organisms are normal inhabitants of the intestines of man and other warm-blooded animals. They are always present in large numbers in sewage and are generally minimal in other water pollutants.

The results of examination are reported as "MF Coliforms per 100 ml".

The Commission's objective for stream sanitation is a coliform density of not greater than 2,400 organisms per 100 ml.

Sanitary Chemical Analyses

Biochemical Oxygen Demand (BOD):

Biochemical oxygen demand is reported in parts per million (ppm), and is an indication of the amount of oxygen required for the stabilization of decomposable organic matter in the water. The completion of the laboratory test requires five days, under the controlled incubation temperature of 20°C.

The Commission objective for stream water quality is an upper limit of 4 ppm.

Solids:

The value for total solids, expressed in parts per million (ppm), is the sum of the values for the suspended and the dissolved matter in the water. The concentration of suspended solids is generally the most significant of the solids analyses in regard to stream water quality.

The effects of suspended solids in water are reflected in difficulties associated with water purification, depositions in streams, and injury to the habitat of fish.

Where suspended solids values are less than 20 ppm laboratory difficulties are experienced and the turbidity is determined instead.

TABLE I

PICTON BAY & CREEK

Date Sampled: September 29, 1965

<u>Sample Point No.</u>	<u>Description</u>	<u>5-Day BOD</u>	<u>S O L I D S</u>			<u>BACTERIOLOGICAL EXAMINATION</u>
			<u>Total</u>	<u>Susp.</u>	<u>Diss.</u>	<u>MF Coliforms per 100 ml.</u>
LOBQPB 4.86	Picton Bay at west shore opposite Mortimer Street	3.2	204	9	195	60,000
LOBQPB 4.9	Picton Bay opposite mouth of creek	2.5	216	8	208	500
LOBQPB 4.8	Picton Bay opposite Head St.	1.2	216	4	212	700
LOBQPB 4.3	Picton Bay at centre at town limits	2.9	206	7	199	200
LOBQPB 4.3	Picton water works - raw water from Picton Bay	2.0	200	23	177	0
LOBQPB 4.3W	Picton Bay - west bank-north boundary	1.3	242	7	235	180
LOBQPB 4.3E	Picton Bay - east bank-north boundary	2.0	212	4	208	50
FGC 0.06	Creek at Fair Grounds at north boundary at Picton Bay	0.6	326	3	323	70
FGC 0.23 I	Creek at Fair Grounds at Proctor- Silex storm sewer outfall	13.0	456	164	292	0
PC 0.64	Picton creek at southern boundary in cemetery	1.5	396	26	370	190

TABLE I (cont'd)

<u>Sample Point No.</u>	<u>Description</u>	<u>5-Day BOD</u>	<u>S O L I D S</u>			<u>BACTERIOLOGICAL EXAMINATION</u>
			<u>Total</u>	<u>Susp.</u>	<u>Diss.</u>	<u>MF Coliforms per 100 ml.</u>
PCW 0.59	Picton creek - west branch at cemetery pond inlet	0.9	529	15	511	156
PC 0.37	Picton creek at town dump	530.0	13854	10060	3794	450,000
PC 0.29	Picton creek below town dump	6.8	1070	552	518	500
PC 0.0	Picton creek at Bridge St.	7.0	388	17	371	2

TABLE IIMUNICIPAL STORM DRAINAGE

Date Sampled: September 30, 1965

<u>Sample Point No.</u>	<u>Description</u>	<u>5-Day BOD</u>	<u>S O L I D S</u>			<u>BACTERIOLOGICAL EXAMINATION</u>
			<u>Total</u>	<u>Susp.</u>	<u>Diss.</u>	<u>MF Coliforms per 100 ml.</u>
PCW 0.59 W	Storm sewer at manhole in cemetery	68.0	426	26	400	12,000,000
PC 0.17 D	Mary St. ditch to Picton creek at road to town dump	1.3	350	2	348	720
PC 0.18 T	Picton STP effluent	5.8	376	8	368	0
LOBQPB 4.86W	Storm sewer outfall behind County Buildings to Picton Bay	14.0	414	81	333	87,000
PC 0.01 R	Bridge St. sewage pumping station overflow to Picton creek	56.0	354	67	287	750,000

